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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,704	09/15/2000	Shusuke Kaya	197261US2	1734

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EXAMINER

JACKSON, CORNELIUS H

ART UNIT PAPER NUMBER

2828

DATE MAILED: 08/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/662,704

Applicant(s)

KAYAB ET AL.

Examiner

Cornelius H. Jackson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
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**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Acknowledgment*

1. Acknowledgment is made that applicant's Response, filed on 27 June 2003, has been entered. Upon entrance of the amendment, claims 1, 9 and 18 were amended and claim 20 was added. Claims 1-20 are now pending in the present application.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-16 and 18-20 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Horie et al. (6323052).

Regarding claim 1, Horie et al. teach a semiconductor laser device **Figs. 1 and 2** comprising a semiconductor multi-layer film **1-13** formed by laminating optical confinement layers **3,5** and active layers **4** so as to dispose each of the active layers **4** between the optical confinement layers **3,5**; a high reflection film coated on a first end of

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the multi-layer film **1-13** perpendicular to junction planes of the individual layers in the semiconductor multi-layer film **1-13**; and a low reflection film, coated on a second end of the multi-layer film opposite to the first end and comprising essentially  $\text{Al}_2\text{O}_3$  having a resistivity of  $1 \times 10^{12} \Omega\text{m}$  or more, **see col. 16, lines 19-48 and col. 17, lines 19-32.**

Although Horie et al. do not explicitly state that the low reflection film comprises essentially  $\text{Al}_2\text{O}_3$  having a resistivity of  $1 \times 10^{12} \Omega\text{m}$  or more, Horie et al. teach that the low reflection film is formed by the same method used by the Applicant (see specification, page 8, lines 3-7) of the material  $\text{AlO}_x$  (which is well known expression in the art for  $\text{Al}_2\text{O}_3$ ) which inherently has a resistivity of  $1 \times 10^{12} \Omega\text{m}$  or more (when formed by the stated method).

Regarding claims 9 and 18, Horie et al. disclose the method in which the low reflection film is formed; therefore, it is inherent that the low reflection film comprises essentially  $\text{Al}_2\text{O}_3$  having a stoichiometric ratio composition.

Regarding claim 19, Horie et al. disclose all the stated limitations, due to unavoidable impurities (as stated by Applicant in paper number 16, page 3, lines 21-24).

Regarding claims 2, 3, 10 and 11, Horie et al. teach the reflection film is formed from a single layer or plurality of layers, **see col. 17, lines 19-32.**

Regarding claims 4, 5, 12 and 13, Horie et al. disclose all the stated limitations, **see col. 15, line 45-col. 16, line 48.**

Regarding claims 6 and 14, Hashimoto et al. teach the high reflection film contains a film comprised of at least  $\text{Al}_2\text{O}_3$ , **see col. 17, lines 19-32.**

Regarding claims 7, 8, 15 and 16, Horie et al. disclose all the stated limitations, **see col. 17, lines 19-32.**

Regarding claim 20, Horie et al. disclose the individual layers forming the semiconductor multi-layer film each being made of a semiconductor material simultaneously containing Ga and at least one of In, As, P and Al, **see col. 10, line 27-col. 13, line 10.**

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horie et al. (6323052). Horie et al., as applied to claims 1-16 above, teach all the stated limitations except for the  $\text{Al}_2\text{O}_3$  film being deposited by an electron cyclotron resonance plasma sputtering process. It would have been an obvious to one having ordinary skill in the art at the time the invention was made to use an electron coating process since the examiner takes Office Notice of the equivalence of an electron cyclotron resonance plasma sputtering process and electron beam evaporation process for their use in the laser art and the selection of any of these known equivalents to remove excess

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oxygen/oxide from the coating/film being formed would be within the level of ordinary skill in the art.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (703) 306-5981. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.



chj  
August 13, 2003



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